Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-40. (Cancelled).

41. (Previously Presented) The method according to claim 66, wherein said associating compound is an inhibitor, mediator, or other compound that regulates TNF-α-converting enzyme activity.

42. (Previously Presented) The method of claim 66, wherein said associating compound is a competitive inhibitor, un-competitive inhibitor, or non-competitive inhibitor.

43-55. (Cancelled).

56. (Currently Amended) The method according to claim **[63]** **66**, wherein the associating compound is designed to associate with the S1' region of TNF-α-converting enzyme.

57. (Currently Amended) The method according to claim **[63]** **66**, wherein the associating compound is designed to associate with the S1'S3' pocket of TNF-α-converting enzyme.

58. (Currently Amended) The method according to claim **[63]** **66**, wherein the associating compound is designed to incorporate a moiety that chelates zinc.

59. (Currently Amended) The method according to claim **[63]** **66**, wherein the associating compound is designed to form a hydrogen bond with Leu348 or Gly349 of TNF-α-converting enzyme.

60. (Currently Amended) The method according to claim **[63]** **66**, wherein the associating compound is designed to introduce a non-polar group which occupies the S1' pocket of TNF-α-converting enzyme.

61. (Currently Amended) The method according to claim **[63]** **66**, wherein the associating compound is designed to introduce a group which lies within the channel joining S1' - S3' pockets of TNF-α-converting enzyme and which makes appropriate van der Waal contact with the channel.

62. (Currently Amended) The method according to claim **[63]** **66**, wherein the associating compound is designed to form a hydrogen bond with Leu348 or Gly349 on the backbone amide groups of TNF-α-converting enzyme.

63-65. (Cancelled).

66. (Currently Amended) A method of identifying a compound that associates with tumor necrosis factor-α-converting enzyme (TACE), comprising (A) using atomic coordinates that comprise the coordinates of Table 1 to design an associating compound that forms a bond with a catalytic domain of a TACE polypeptide, (B) synthesizing said compound, and (C) determining *in vitro* whether said compound associates with said catalytic domain **and whether said compound inhibits, meditates, or otherwise regulates TNF-α-converting enzyme activity**.

67-74. (Cancelled).

75. (Previously Presented) The method according to claim 66, wherein the associating compound is designed to associate with the S1' region of TNF-α-converting enzyme.

76. (Previously Presented) The method according to claim 66, wherein the associating compound is designed to associate with the S1'S3' pocket of TNF-α-converting enzyme.

77. (Previously Presented) The method according to claim 66, wherein the associating compound is designed to incorporate a moiety that chelates zinc.

78. (Previously Presented) The method according to claim 66, wherein the associating compound is designed to form a hydrogen bond with Leu348 or Gly349 of TNF-α-converting enzyme.

79. (Previously Presented) The method according to claim 66, wherein the associating compound is designed to introduce a non-polar group which occupies the S1' pocket of TNF-α-converting enzyme.

80. (Previously Presented) The method according to claim 66, wherein the associating compound is designed to introduce a group which lies within the channel joining S1' - S3' pockets of TNF-α-converting enzyme and which makes appropriate van der Waal contact with the channel.

81. (Previously Presented) The method according to claim 66, wherein the associating compound is designed to form a hydrogen bond with Leu348 or Gly349 on the backbone amide groups of TNF-α-converting enzyme.